American Foundryman

AMERICAN FOUNDRYMEN'S ASSOCIATION FOUNDED 1896

TIVITIES

March · 1941

Send Your Key Men!

THE dissemination of knowledge in the science and art of castings production is the fundamental object of the American Foundrymen's Association. An opportunity for its membership, and those directly and indirectly associated with the Foundry Industry, to participate in this dissemination will be afforded during the 45th Annual Convention. In the preparation for the defense of Democracy, as in the past, the Foundry Industry is an important unit in the industrial welfare of our Nation.

The technical papers, shop courses, lectures, committee meetings, and plant visitations, which are being arranged by the various committees of the Association, represent only part of the effort that is being put forth to make this convention of genuine value not only to those associated with the industry but to the whole Nation. The officials of the Government are interested in your industry and will have representatives at this convention to make known their interests.

Beside the technical papers that cover new theories, new techniques and improvements associated with accepted practices, the shop operation courses will present valuable information on production equipment and new methods, cost reduction, raw materials and their influences, and many other subjects related to the founding of ferrous and non-ferrous castings.

Foundry executives and their key men should expose themselves to this assembly of the most progressive men of the industry and the important papers and discussions that invariably furnish ideas which can be measured in extra dividends to owners or stockholders.

Your interest in the Foundry Industry is only manifested by attending a convention, but your continued progress is insured by becoming a member of the technical organization that has recorded and promoted dissemination of the ever-changing facts related to the art and science of founding.

A study of the tentative schedule, published on page 5 of this issue, should convince every manager that there are sessions arranged for, and papers being presented on subjects of current interest in every branch of the foundry industry. In the non-ferrous field, particularly light metals, aluminum and magnesium papers and round-table discussions are scheduled. Progress in gray iron, malleable and steel castings are covered by papers and round-table sessions. Of special interest to everyone connected with the making of castings is the series of lectures on core practices by a recognized, outstanding authority. Apprentice training in the Defense Program is of vital importance and will be ably presented in a special session.

The several shop operation courses are designed for discussions of subjects of special interest and for the purpose of exchanging ideas on foundry problems.

Remember, top men prepare and discuss papers. Why not send your top men to hear them?

Fred J. Walls

F. J. WALLS,
Director, American Foundrymen's Association

Fred J. Walls, International Nickel Co., Detroit, Mich., a member of the Association's Board of Directors, at present is serving as vice chairman of the Gray Iron Division and is participating in the operation of that division as chairman of the Program and Papers Committee; chairman of the Policy Committee of Program and Papers; vice chairman of the Advisory Committee; and chairman of the Committee on Welding Cast Iron. He is also a member of the Divisional Activities Correlation Committee; Committee on Cupola Research; Subcommittee on Alloys and Subcommittee on Operation and Processes.

American Foundryman

CONTENTS

March, 1941

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Entered as second class matter July 22, 1938, at the post office at Chicago, Illinois, under the Act of March 3, 1879.

Nominations Presented for Officers and Directors

AT a meeting of the Nominating Committee of the American Foundrymen's Association, held in the offices of the Association on Tuesday, January 21, H. S. Simpson, president, National Engineering Co., Chicago, Ill., present Vice President, was nominated to succeed L. N. Shannon, vice president and works manager, Stockham Pipe Fittings Co., Birmingham, Ala., as President. Mr. Shannon was nominated for a three-year directorship. Duncan P. Forbes, president and general manager, Gunite Foundries Corp., Rockford, Ill., was nominated for the vice presidency. Both the presidency and vice presidency are for one-year terms.

In addition to President Shannon, the following were nominated as directors for three-year terms: W. J. Corbett, Atlas Steel Castings Co., Buffalo, N. Y.; J. G. Coffman, Los Angeles Steel Casting Co., Los Angeles, Calif.; R. J. Allen, Worthington Pump & Machinery Corp., Harrison, N. J.; and M. J. Gregory, Caterpillar Tractor Co., Peoria, Ill.

The meeting of the Nominating Committee was held in accordance with the by-laws of the Association, Article IX, Section 3, which states that the Nominating Committee shall meet at a time and place designated by the Chairman at least 90 days prior to the annual business meeting and shall name candidates for the office of President, Vice President and for each of the directorships that shall become vacant.

The Nominating Committee each year is elected at the Annual Business Meeting of the Association, and according to Article IX, Section 1, the committee is composed of the three last living past presidents and four other members elected by the Association. The senior past president committee member is the chairman. Members of this year's Nominating Committee were as follows: Past President H. Bornstein, Deere & Co., Moline, Ill., *Chairman;* Past President Marshall Post, Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.; Past President H. S. Washburn, Plainville Casting Co., Plainville, Conn.; C. V. Nass, Fairbanks, Morse & Co., Beloit, Wis.; H. F. McFarlin, Lunkenheimer Co., Cincinnati, Ohio; F. A. Melmoth, Detroit Steel Casting Co., Detroit, Mich., and R. K. Glass, Republic Steel Corp., Buffalo, N. Y.

Herbert S. Simpson

HERBERT S. SIMPSON, nominated for the presidency of the Association, is now serving as its vice president and has been connected with the foundry and foundry equipment industry for many years, both through his own efforts and the experience of his father, Peter L. Simpson, who, before his death in 1917, had spent his life in the foundry and machinery business.

Mr. Simpson was born in Minneapolis and moved to Chicago when a boy. After finishing his education, he engaged in the manufacture of clay working machinery, later becoming assistant to the president of the Hatfield-Penfield Steel Co., Bucyrus, Ohio. In 1917, he left that company to associate himself with the National Engineering Co., Chicago, manufacturers of sand mixing and conditioning and other foundry equipment, of which organization he has been president since its incorporation.

Mr. Simpson is a past director of the American Foundrymen's Association and a past president of the Foundry Equipment Manufacturers' Association. For many years, he has supported the various research activities of the A.F.A. and has been very active in the Association in many ways. He has recently made many new friends and acquaintances throughout the country on his numerous chapter visits while serving as vice president of the Association. He is also a past president of the Kiwanis Club of Chicago; a former alderman in the city of Evanston, Illinois, acting as chairman of the Finance Committee of that body from 1931 to 1934. He is at present a trustee of the Evanston Library Board.

H. S. Simpson

D. P. Forbes

DUNCAN P. FORBES, president and general manager, Gunite Foundries Corp., Rockford, Ill., nominated for vice president of the Association, is well qualified for this office, as he has served a three-year term (1938-40) as a director of the Association and for one year as a member of the Board's executive committee. At present, he is chairman of the Malleable

D. P. Forbes

Division of A.F.A., of which he has been a member since its organization in 1932. He has also served on several other A.F.A. committees, has presented papers and talks before A.F.A. national and chapter meetings, was active in the organization of the Northern Illinois-Southern Wisconsin Chapter and has served on its board of directors.

Mr. Forbes is a native of Rockford and comes from a long line of foundrymen. His great-grandfather, Duncan Forbes, was one of the pioneers in the production of malleable iron in America and established the present company, of which Mr. Forbes is president, in 1854.

Mr. Forbes received his higher education at Yale University, New Haven, Conn., from which he was graduated in 1919. The following year he took postgraduate work at Yale, specializing in metallurgy. Later, he spent some time in the laboratory of Prof. Enrique Touceda, Albany, N. Y., studying the metallurgy of malleable iron.

In 1921, he entered the employ of the Rockford Malleable Iron Works, Rockford, as a molder for about a year and then was appointed junior metallurgist. Later, he was appointed molding foreman and in 1925 was made work manager.

As a result of research work directed by Mr. Forbes, a process of producing high test gray iron was developed, using the air-furnace process of melting. The metal was given the trade name "Gunite" and a separate company, The Gunite Corporation, was organized in 1928 to promote the manufacture and sale of the metal, with Mr. Forbes as president. Later he was elected to the presidency of the Rockford-Northwestern Malleable Corporation, which became the Gunite Foundries Corporation in 1932.

Mr. Forbes was formerly a director of the Malleable Iron Research Institute, now the Malleable Founders' Society, and is a member of the A.F.A., American Society for Metals, Army Ordnance Association, and the Society for Automotive Engineers.

M. J. Gregory

M. J. GREGORY, factory manager, Caterpillar Tractor Co., Peoria, Ill., who has been nominated for a three-year directorship, has long been active in affairs of the Association. He not only served on various committees but is a past chair-

M. J. Gregory

man of the Quad City chapter. As a speaker, he is in demand at many chapter and regional meetings.

Born in Rhode Island, Mr. Gregory was educated in the public schools there and later served as an apprentice at Brown & Sharpe Mfg. Co., Providence, R. I. In addition to serving his apprenticeship, Mr. Gregory studied at Brown University and Massachusetts Institute of Technology and had the privilege of being student of metallography under the personal direction of Dr. Albert Saveur. Mr. Gregory is well equipped to function as a director of A.F.A. through his knowledge of the work of the Association obtained through participation in its activities.

L. N. Shannon

Lester N. Shannon

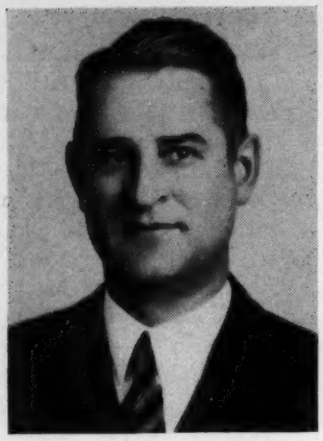
LESTER N. SHANNON, retiring president of A.F.A., is vice president and works manager, Stockham Pipe Fittings Co., Birmingham, Ala. Having served as a director, vice president and, for the past year, as president of the American Foundrymen's Association, Mr. Shannon now has been nominated for a second term as a director of the Association. Born in Carbon Hill, Ala., he received his early schooling there. Later he attended Birmingham Southern College, from which he was graduated. Following graduation, he immediately became associated with the company in whose services he has risen to his present position.

Members of the Association are familiar with the many activities in which Mr. Shannon has taken part since he first took office last year. His main objective during his administration was the membership campaign that was launched so successfully by him last June. His visits, along with those of Vice President Simpson, helped to establish a good fellowship feeling between the national officers and Association members.

William J. Corbett

WILLIAM J. CORBETT, vice president and works manager, Atlas Steel Casting Co., Buffalo, N. Y., nominated as a member of the Board of Directors for a three-year term, has been actively interested in Association work for many years. He is a past vice chairman and chairman of the Western New York chapter, has participated in A.F.A. Cost Committee work, representing the Steel Founders' Society of America, and has written extensively for the technical press in relation to steel castings. He also has presented papers before A.F.A. conventions and meetings of the American Iron and Steel Institute and the Society of Industrial Engineers.

Mr. Corbett was born in Kingston, Ont., Canada. When his parents moved to Erie, Pa., he attended and was graduated



W. J. Corbett

from Central High School. He then furthered his education by enrolling at Carnegie Institute of Technology, Pittsburgh, Pa., from which he was graduated in 1914 with an engineering degree. Later, in 1922, he received a metallurgical engineering degree.

After graduation in 1914, he was employed by the American Steel Foundries, Alliance, O., as a special apprentice. In 1915, he was transferred to the Chester, Pa., plant and became a production engineer. Four years later, he was sent to the Chicago offices to become an assistant to the vice president. Mr. Corbett severed his connection with this company in 1921 to become a cost accountant with the Steel Founders' Society of America. He left that position after a year to go back to Chicago as an industrial engineer for the Electric Steel Founders Research Group; but he was back in Pittsburgh, in 1925, as secretary and manager, Steel Founders' Society of America, until 1929. From that year till 1933 Mr. Corbett was the assistant to the president and works manager, Fort Pitt Steel Casting Co., McKeesport, Pa. In 1933, he accepted the position he now holds with Atlas Steel Casting Co.

J. G. Coffman

J. G. Coffman, plant manager, Los Angeles Steel Casting Co., Los Angeles, Calif., has been nominated for a directorship of A.F.A. for a three-year term. Mr. Coffman has long been identified with the foundry industry on the Pacific Coast and has been an active member of the Southern California chapter, serving as its second chairman.

Mr. Coffman was born in Tylersbury, Pa., and began his career with the Franklin Steel Co. in 1900. Later, he was associated with the National Malleable & Steel Castings Co. He left to become associated with the Nevada Engineering Co., Reno, Nev., as foundry superintendent in 1911 and the following year, became melter for the Pacific Coast Steel Co., San Francisco. He later was associated with the Noble Electric Steel Co., Shasta, Calif.; Lash Steel Co., San Francisco; and Southern California Iron & Steel Co., Los Angeles. In 1923, he left the employ of the latter company to become associated with the Los Angeles Steel Casting Company as superintendent and shortly after was appointed to

J. G. Coffman

his present position of plant manager.

In addition to taking an active interest in the affairs of the Association, Mr. Coffman is also a member of the American Society for Metals.

Russell J. Allen

RUSSELL J. ALLEN metallurgist, Worthington Pump and Machinery Corp., Harrison, N. J., is chairman of the Metropolitan chapter which will play host to the Nation's foundrymen at the Annual Convention in New York City, May 12-15. Mr. Allen has taken an extensive interest in Metropolitan chapter

R. J. Allen

activities during and since its formation, serving as director, vice chairman and chairman. He was nominated to serve as a member of the A.F.A. Board of Directors for a three year term.

Russell J. Allen is a native of Port Huron, Mich., receiving his technical training at the University of Toronto, from which he was graduated in 1913. From 1913 to 1930, he was with the Rolls Royce of America, Inc., at its Springfield, Mass., plant, serving as a metallurgist. He then accepted his present position with the Worthington Pump & Machinery Corp., Harrison, N. J.

Mr. Allen's interest in technical society work is well illustrated by memberships in such organizations as American Foundrymen's Association, American Society for Metals, American Institute of Mining and Metallurgical Engineers, American Society for Testing Materials, American Petroleum Institute and the British Iron and Steel Institute.

Manganese in Tennessee

THE Division of Geology, State of Tennessee, has issued its Markets Circular No. 4, Second Edition, 1940, on the occurrence of manganese ores in the State of Tennessee. This report is authorized by George I. Whitlatch, Associate Geologist. The pamphlet covers general properties of manganese, minerals in which it occurs, modes of occurrence, metallurgical uses, chemical uses, marketing and price.

Announce Tentative Sessions Schedule for New York Convention

THE announcement of the tentative schedule of sessions for the 45th Annual Convention of the American Foundrymen's Association, to be held at the Hotel Pennsylvania, New York City, discloses that this gathering of foundrymen from all sections of the country will discuss problems of vital interest to all branches of the industry. Composed of some 35 sessions, covering the practical and scientific advancements of the industry, the information obtainable at the convention will appeal to all types of foundrymen, including shop executives, engineers, research workers and management. An unusually imposing group of experts in their respective fields has been secured to present papers on a variety of interesting phases of foundry work, many touching on problems important in the National Defense Program.

The excellent facilities available in Hotel Pennsylvania, convention headquarters, for the holding of all types of meetings, together with the fact that all A.F.A. activities will be confined to the hotel, is of definite advantage to those attending. Such an arrangement makes it possible to secure easily the information desired by individual foundrymen.

As the tentative schedule, shown in the accompanying box indicates, presentation of papers and committee reports will begin on Monday, May 12. Gray iron, malleable and non-ferrous meetings of various types as well as shop operation courses will be held on Monday and Tuesday. Wednesday, May 14, has been designated as the day for the annual Board of Awards lecture and business meeting, and the annual Association dinner. The Board of Awards is selecting an outstanding national speaker as the Awards lecturer. Sessions on steel and gray iron castings will be held on Wednesday and Thursday with the shop operation courses continuing throughout the entire four days.

General Interest Sessions

Scattered throughout the program will be sessions of general interest. Excellent programs for these sessions are being planned. For example, foundry training, a most important subject, will be emphasized at the Apprentice Training session, with W. E. Patterson, Federal Committee on Apprenticeship, speaking on *Apprentice Training in the Defense Program.* The A.F.A. Committee will discuss, as a symposium, related instruction for the pattern and foundry apprentice.

Safety and hygiene will be discussed at a special session by Roger Williams, assistant director, Inspection and Safety Service Department, New York State Insurance Fund. This meeting will be a continuation of the series developed under the auspices of the Safety and Hygiene section of the A.F.A.

Sand Shop Course

The four sand shop course sessions will be led by the following discussion leaders: *Non-Ferrous,*

Tentative Schedule of Sessions, 1941 A.F.A. Convention, Hotel Pennsylvania, New York City, May 12-15, 1941

Monday, May 12

A. M.		
	9:00	Registration
10:00 to	11:00	Sand Shop Course, Non-Ferrous
10:30 to	12:30	Refractories
11:30 to	12:30	Gray Iron Shop Course
P. M.		
2:00 to	4:00	Malleable
2:00 to	4:00	Non-Ferrous
2:00 to	4:00	Safety and Hygiene
3:00 to	5:00	Chapter Delegate Meeting
4:00 to	6:00	Foundry Costs
4:30 to	6:00	Lecture Course, Session No. 1
	7:00	Chapter Officers' Dinner
	7:00	Engineering Instructors' Dinner

Tuesday, May 13

A. M.		
9:30 to	10:30	Sand Shop Course, Malleable
10:30 to	12:30	Malleable
10:30 to	12:30	Non-Ferrous
10:30 to	12:30	Gray Iron
10:30 to	12:30	Job Evaluation and Time Study
P. M.		
12:30 to	3:30	Malleable Round Table Luncheon
12:30 to	3:30	Non-Ferrous Round Table Luncheon
2:00 to	4:00	Sand Research
2:00 to	4:00	Apprentice Training
3:30 to	4:30	Gray Iron Shop Course
4:30 to	6:00	Lecture Course, Session No. 2
	7:00	Apprentice Supervisors' Dinner

Wednesday, May 14

A. M.		
9:30 to	10:30	Sand Shop Course, Gray Iron
10:30 to	12:30	Business and Awards Meeting
P. M.		
1:00 to	3:30	Steel Division Round Table Luncheon
2:00 to	4:00	Sand Research
2:00 to	4:00	Patternmaking
2:00 to	4:00	Foreman Training
3:30 to	4:30	Gray Iron Shop Course
4:30 to	6:00	Lecture Course, Session No. 3
	6:30	Annual Dinner

Thursday, May 15

A. M.		
9:30 to	10:30	Sand Shop Course, Steel
9:30 to	10:30	Gray Iron Shop Course
10:30 to	12:30	Gray Iron
10:30 to	12:30	Steel
10:30 to	12:30	Plant and Plant Equipment
P. M.		
2:00 to	4:00	Gray Iron
2:00 to	4:00	Steel
4:00 to	5:30	Lecture Course, Session No. 4

F. W. Hunter, Sargent & Co., New Haven, Conn.; *Malleable,* D. F. Sawtelle, Malleable Iron Fittings Co., Branford, Conn.; *Gray Iron,* C. P. Randall, Hunt-Spiller Mfg. Co., Boston; *Steel,* W. G. Reichert, American Brake Shoe & Foundry Co., Mahwah, N. J.

Gray Iron Shop Course

The four gray iron shop course sessions will have as discussion leaders the following: "Cupola Practice," Donald J. Reese, International Nickel Co., Inc., New York; "Gating and Risering," Elmer J. Carmody, C. C. Kawin Co., Chicago; "Electric Furnace Melting," A. E. Rhoads, Detroit Electric Furnace Div., Kuhlman Electric Co., Bay City, Mich.; "Casting Defects and Remedies," A.F.A. Committee on Analysis of Casting Defects.

Annual Lecture Course

The 1941 lecture course, which will cover four sessions, will be on "Core Practices and Theories," with H. W. Dietert, Harry W. Dietert Co., Detroit, as the lecturer. Mr. Dietert is being assisted in the preparation of his material by many men throughout the foundry industry.

Partial List of Papers

A partial list of tentative papers, with their authors, for the many technical and research sessions follows:

Observations on Malleable Furnace Refractories, by J. A. Kayser, Laclede-Christy Clay Products Co., St. Louis.

Natural Stone as a Cupola Refractory, by F. J. Wurscher, Acme Steel & Malleable Works, Buffalo.

Graphitization of Cementite in Cupola White Iron, by N. A. Ziegler, Crane Co., Chicago.

The Velocity of Conversion of Austenite to Ferrite and Cementite, by H. A. Schwartz and M. K. Barnett, National Malleable and Steel Castings Co., Cleveland.

Malleable Iron for the Defense Program, by J. H. Lansing, Malleable Founders' Society, Cleveland.

Flame Hardening of Malleable Iron, by Stephen Smith, Air Reduction Sales Co., New York City.

Observations on the Duplexing of Malleable Iron, by G. A. Schumacher, Albion Malleable Iron Co., Albion, Mich.

Gating and Risering for High Pressure Iron Castings, by H. H. Judson, Goulds Pumps, Inc., Seneca Falls, N. Y.

Effects of Moisture and Preheating on Cupola Blast, by J. T. Eash and R. E. Smith, International Nickel Co., Inc., Bayonne, N. J.

Certain Aspects of Hydrogen in Cast Iron, by C. A. Zapffe, Battelle Memorial Institute, Columbus, Ohio.

Effects of Pouring Temperatures on Mechanical Properties of Cast Iron, by V. A. Crosby, Climax Molybdenum Co., Detroit.

Factors Influencing Graphitizing Behavior of Cast Iron, by S. C. Massari, Association of Manufacturers of Chilled Car Wheels, Chicago.

The Undercooling of Gray Cast Iron, by Alfred Boyles and C. H. Lorig, Battelle Memorial Institute, Columbus, Ohio.

Nickel-Molybdenum Cast Irons, by R. A. Flinn, Massachusetts Institute of Technology, Cambridge, Mass., and D. J. Reese, International Nickel Co., Inc., New York.

Heat Treatment of Cast Iron, by C. A. Nagler, and R. L. Dowdell, University of Minnesota, Minneapolis, Minn.

Fluidity of Cast Steels, by H. F. Taylor, Naval Research Laboratory, Anacostia, D. C.

Mechanism of Pin-Hole Formation in Cast Steel, by C. E. Sims and C. A. Zapffe, Battelle Memorial Institute, Columbus, Ohio.

Recent Developments in Producing Converter Cast Steel, by A. H. Jameson, Malleable Iron Fittings Co., Branford, Conn., and A. W. Gregg, Whiting Corp., Harvey, Ill.

Foundry Budgeting, by E. C. Bumke, Oliver Farm Equipment Co., South Bend, Ind.

Welding Aluminum Castings, by F. T. McGuire, Notre Dame University, Notre Dame, Ind.

Effects of Furnace Atmospheres in Non-Ferrous Melting, by J. M. Kelly, Westinghouse Electric & Mfg. Co., E. Pittsburgh, Pa.

Magnesium Alloy Foundry Practice, by M. E. Brooks and A. W. Winston, Dow Chemical Co., Midland, Mich.

Aluminum-Copper-Magnesium-Zinc Castings, by L. W. Eastwood and L. W. Kempf, Aluminum Co. of America, Cleveland.

Some Properties of Foundry Sands at High Temperatures, by G. W. Ehrhart, Cornell University, Ithaca, N. Y.

Progress Report on Investigation of High Temperature Effects on Steel Sands, by J. R. Young, Cornell University, Ithaca, N. Y.

Dry Sand Molding Procedure for Heavy Castings, by W. A. Hambley, Allis-Chalmers Mfg. Co., Milwaukee, Wis.

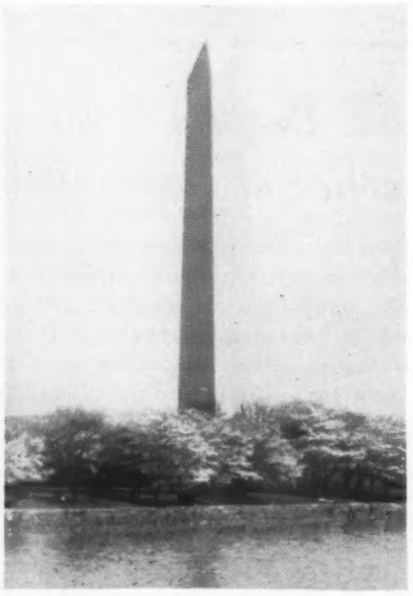
Testing of Foundry Sands and Its Co-ordination with Molding Procedure, by J. J. Boland, Griffin Wheel Co., Chicago.

Reproducibility of Tests of Foundry Sands, by Stanton Walker, National Industrial Sand Association, Washington, D. C.

The majority of these papers will be published in preprint form and will be distributed to all members. A few weeks before the convention a preprint request form will be mailed to all members that lists all available preprints. The preprints wanted by the members are checked off and the list returned to the national office. A few days after the office receives the list the preprints are mailed to the member free and postpaid.

Pre-Convention Trip to Historic Virginia and Washington

TAKING advantage of the fact that this will be the first convention in the East for many years, preconvention trips are being arranged to Washington and the historic Williamsburg section of Virginia. It is planned to provide for the West and Midwest members to meet in Washington on Saturday, May 10, for a sightseeing trip, later taking one of the steamers



The Washington Monument, a mecca for American tourists in Washington, looms up from among the blooming Japanese cherry trees.

of the Norfolk & Washington Steamship Co. for a cruise down the Potomac, reaching Norfolk Sunday morning.

After a tour of Norfolk and Newport News, the party will be taken to Williamsburg for lunch, there viewing the famous buildings which have recently been restored to their Revolutionary period form. In the late afternoon, the party will proceed to Jamestown and Yorktown, stopping at Old Point Comfort, returning to Washington by boat in time to leave Washington the next morning for New York.

This trip is proposed as it is realized that many members in the West and Midwest would like to combine a sightseeing opportunity with a trip to the convention, taking advantage of the fact that the railroads provide transportation to New York by way of Washington, returning home from New York by any direct route that may be preferred.

Pamphlet on Navy Bidding Issued

THE Bureau of Supplies and Accounts, U. S. Navy Department, Washington, D. C., has prepared a pamphlet for the information of those desiring business relationship with the Navy, entitled "Selling to the Navy." The booklet is published to explain generally the procedure for those who wish or are selling their product or products to the Navy Department. It is not to be considered a text of official regulations but merely a broad explanation of the method of conducting business of the Navy. The booklet covers general government restrictions with regard to purchasing, the method in which the Bureau of Supplies and Accounts functions, gives a list of the field offices, general listing of products by classification which the Navy requires, an explanation of the Navy stock catalogue. This latter section also covers the matter of federal specifications and Navy specifications.

The next section is devoted to an explanation of the acceptable list of approved materials for Navy consumption, and it is pointed out that this is a restricted publication and is not to be distributed outside the Naval service.

Other sections in the booklet are devoted to various purchase requirements, such as advertising for bids, schedules, proposals or invitations to bid, specifications and plans, methods of opening and awarding bids, types of contracts, inspection of materials, shipment requirements and payments. One section is devoted to the matter of clothing, uniforms and provisions, and the final section is a list of instructions of how manufacturers or dealers can be sure that they will be placed on the mailing list so that they will receive bid invitations, if they so desire.

Raleigh Tavern in Williamsburg, Va. A scene of one of the buildings in this old colonial city being rebuilt in its original form to show how early Americans lived. A spot preconvention tourists will not want to miss seeing.

Metropolitan Chapter Appoints Convention Committee Chairmen

AT A MEETING of the General Convention Committee of the Metropolitan chapter on February 3 at the Pennsylvania Hotel, New York, chairmen of the various committees which will function during the 45th annual convention of A.F.A. were appointed. In addition to the appointment of convention committee chairmen, plans for the convention were discussed by C. E. Hoyt, executive vice president of A.F.A., who outlined to the General Committee the methods used to stage various convention events for which the host chapter will be responsible.

The following chairmen were appointed for the respective committees indicated:

General Committee:

Chairman—Sam Tour, Lucius Pitkin, Inc., New York.

Vice Chairman—Don Reese, International Nickel Co., Inc., New York.

Finance Committee:

R. J. Allen, Worthington Pump & Machinery Corp., Harrison, N. J.

Reception Committee:

D. Polderman, Jr., Whiting Corp., New York.

Hotel Committee:

W. A. Phair, Journal of Commerce, New York.

Plant Visitation Committee:

Karl Wheeler, American Steel Castings Co., Newark, N. J.

Ladies' Entertainment Committee:

Don Reese, International Nickel Co., Inc., New York.

Transportation Committee:

T. D. Parker, Climax Molybdenum Co., New York.

Publicity Committee:

Fred Sefing, International Nickel Co., Inc., New York.

Annual Dinner Committee (Cooperating with A.F.A. Committee.)

A. Y. Gregory, Whitehead Bros., Co., New York.

Personnel of the various committees will be announced at a later date.

H. W. Dietert to Present Lecture Series on Core Practice at Convention

MEMBERS who are planning to attend the 45th Annual Convention in New York, May 12 to 15 inclusive, at Hotel Pennsylvania, will be interested to know that Harry W. Dietert, Harry W. Dietert Co., Detroit, recognized internationally as one of the foremost authorites on sand and its behavior, will deliver a series of four lectures on core room practice, one on each of the four days of the convention. Mr. Dietert has been gathering information on this subject from all over the country and has been assisted by a large number of individuals, a list of whom is too long to publish.

Mr. Dietert has had considerable opportunity to observe first hand, the core rooms and the practices therein in many of the foundries of the country. In addition, as former chief engineer, U. S. Radiator Co., of Detroit, he was interested for a number of years in foundry problems, including those of the core room.

An outline of the subjects to be covered in this series of lectures discloses that such subjects as materials used, their function and method of control; core mixtures; handling of materials; mixing; core making; core baking; core finishing; washes; wash mixtures; storage; core testing; setting; shakeout; core sand reclamation; influence on casting surface; designing of casting and pattern equipment; economics of core production; and defects due to cores.

According to the tentative schedule of sessions, shown on page 5 of this issue, the lectures will be delivered each day from 4:30 to 6:00 p. m. with the exception of Thursday, the last day of the convention, when the lecture will be given at 4:00 to 5:30 p. m.

Fifth Avenue and Rockefeller Center—two of New York City's many sights that foundrymen will see while at the Annual Convention, May 12-15.

A Study of One Cause of Casting Defects

By Arthur S. Klopf*, Chicago, Ill.

The author, who is vice president and manager, Hansell-Elcock Co., Chicago, Ill., and a member of the A.F.A. Gray Iron Division Committee on Study of Causes and Remedies for Castings Defects, has contributed the accompanying article as one of the many interesting studies in conjunction with the committee's work. Members are invited to submit similar studies to the committee as it is only through the collective efforts of many that the final report of the committee may be made of greatest use to producers of castings.

MACHINE tool castings, because of the great amount of time spent in machining the inside as well as the outside of the casting, suffer more from sub-surface defects than any other type of casting.

Periodic reoccurence of the defects, shown in Bars D and F of the accompanying illustration, occurred in castings received from two foundries, which were always satisfactorily replaced, but the cause of which was never studied to completion. A low carbon iron, in the range carbon 3.00-3.10 per cent; silicon, 1.90 per cent; manganese, 0.85 per cent; phosphorus, 0.18 per cent; and sulphur, 0.12 per cent was used with no alloy added. The tensile strength was approximately 42,000 lb. per sq. in., and the Brinnell No. approximately 200.

Causes of Defect

Inasmuch as it is a recognized fact that an iron of the above type is far more sensative to mold conditions, than an ordinary iron, the writer felt that the condition shown was due to either wet facing, or green ladles, coupled with dull iron; that is, iron poured at a temperature too low for this type of iron. These castings, ranging up to 100 lb. in weight, were poured in green sand molds, made on squeezer, or small jolt roll-over machines.

A representative section of the castings was then agreed on, which was a bar 1½ x 1¼ x 6 in. With the bar attached to the pattern in question, so that it would be poured as a unit under exact conditions, many test castings with bars were made and then machined, ⅛ in. being removed from the top and bottom. The results are shown by the six bars in the accompanying illustration. Each bar shown is the average for its group.

Individual Analysis

Bar A was made in a mold, using relatively dry facing, poured from a dry ladle, and of hot iron. The bar was absolutely clean and free of any defects.

Bar B was poured in a mold made with relatively dry facing, from a dry ladle, but with cool iron. Here we found a few inclusions, but no trace of entrapped steam or gases.

Bar C was poured in a mold, made with dry facing, but from a green ladle, of hot iron. The pockets then were evidently caused by the steaming ladle, and there were no entrapped inclusions.

Bar E, in contrast to Bar C was poured in a mold, made with dry facing, from a dry ladle, but with cool iron. It is evident there was practically no steaming, but again, inclusions were trapped by the cool, sluggish iron.

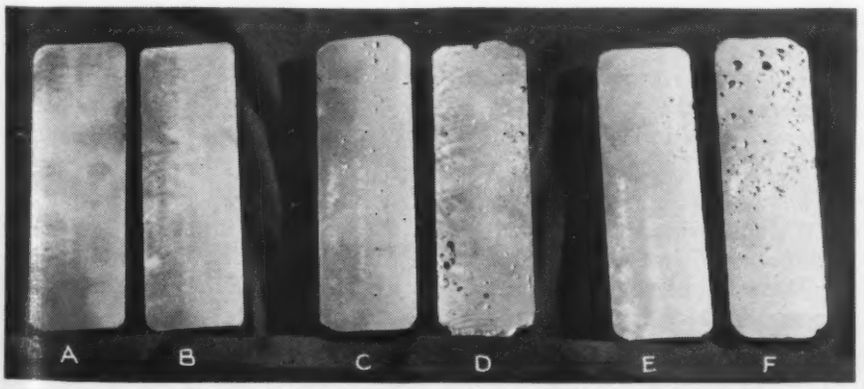
Bar D was poured against relatively wet facing, from a dry ladle of cool iron, and again steam was generated and entrapped in the casting. The number of steam pockets was several times as great as in Bars C; hence, it is evident that wet facing is more serious than green ladles.

Bar F was poured into a mold made with very wet facing, from a dry ladle of hot iron. From the illustration, it is evident that a tremendous amount of steam was generated which was unable to work through the iron before solidification. We have now reached the condition found in the castings that were scrapped in the past.

Conclusion

From the above, the conclusion was quickly reached that wet facing was the major cause of the condition, although green ladles were very dangerous when all other conditions were ideal. Careful study of sand conditions and effects was then made, after which the proper moisture and permeability were determined and then maintained. With the moisture carefully controlled and using hot iron poured from absolutely dry ladles, thousands of the castings made in the last six months have shown no defects whatsoever.

*Vice-president and manager, Foundry Division Hansell-Elcock Co.



Castings studied by the author in an attempt to determine if sub-surface defects were caused by wet facing sand or green ladles coupled with dull iron.

Committee Studies Causes and Remedies for Defects in Gray Iron Castings

ONE of the most active committees in the Association is the one which is making a study of the causes and remedies for defects in gray iron castings. An illustration of some of the work being done by this committee is the article by A. S. Klopf, Hansell-Elcock Co., Chicago, which appears on page 9 of this issue.

The committee originally was organized as a general committee of the Association to make a study of castings defects following along the procedure of the Non-Ferrous Division Committee in compiling its report, Analysis of Non-Ferrous Foundry Defects.* After a review of the project, the members decided to limit their activities and investigations to gray iron castings as the first field to be studied. The committee meets each month in Chicago and members of the committee state that they would not miss a meeting, if it is at all possible to attend, because of the interesting discussions.

At the outset of the project, the committee compiled a list of over 30 defects which may occur in gray iron castings and divided the causes into nine catagories as follows: Design, pattern, flask equipment and rigging, sand, cores, molding practice, gating and risering, iron composition, cupola operation, pouring and miscellaneous. Each of the defects listed is studied as to cause under each of the nine classifications and the remedies, due to any one cause, are listed.

Some of the work of the committee will be discussed at a session of the gray iron shop course at the 1941 convention and the committee also has decided to contribute to the information which is being gathered by Mr. Dietert for his series of lectures on "Core Making."

Membership of the committee is as follows: W. A. Hambley, Allis-Chalmers Mfg. Co., Milwaukee, *Chairman;* E. J. Carmody, C. C. Kawin Co., Chicago, *Vice-chairman;* F. W. Hintze, Illinois Clay Products Co., Chicago, *Secretary;* R. K. Glass, Republic Steel Corp., Buffalo; John H. Lowe, Battelle Memorial Institute, Columbus, Ohio; W. B. McFerrin, Cadillac Motor Car Division, General Motors Corp., Detroit; A. S. Nichols, Illinois Clay Products Co., Chicago; W. G. Reichert, American Brake Shoe & Foundry Co., Mahwah, N. J.; W. C. Wine, Sibley Machine & Foundry Co., South Bend, Ind.; F. L. Weaver, Great Lakes Foundry Sand Co., Detroit; C. Zahn, The Vilter Mfg. Co., Milwaukee; F. L. Overstreet, Illinois Clay Products Co., Chicago; A. J. Busch, C. C. Kawin Co., Chicago; and A. S. Klopf, Hansell-Elcock Co., Chicago. Guests, having special experience or knowledge of specific problems that are to be discussed at certain meetings, are invited to attend and participate in the discussions.

*Transactions, American Foundrymen's Association, Vol. 46, pp. 881-888 (1938).

Herres to Aid Cupola Research Committee

Battelle Memorial Institute Contributes

SCHUYLER HERRES of New Brunswick, N. J., has recently been engaged by Battelle Memorial Institute, Columbus, Ohio, to work with the A.F.A. Cupola Research Committee, devoting his time to reviewing the published literature on this and checking pertinent data which will be supplied to the committee.

The work Mr. Herres is doing will be financed through funds raised by the Cupola Research Committee and by a grant of $2000 authorized by the trustees of Battelle Memorial Institute as an aid to the literature search. The association at this time wishes to express its appreciation to Battelle Memorial Institute for this contribution.

Other contributions from companies engaged in castings manufacture and the making of equipment for the foundry industry, which are being acknowledged at their source, are being received at Association headquarters for the continuation of the investigation on practical and research bases.

The various subcommittees of the Cupola Research Committee as announced in the July *American Foundryman* are now preparing material which will present in an authoritative manner, definite recommendations and data on cupola operations and practice under the following headings: (a) Equipment, (b) Operation and Process, (c) Pig Iron, Alloys and Scrap, (d) Fuels and Combustion, (e) Slags, Fluxes and Desulphurizers, and (f) Refractories.

The general committee under the chairmanship of A. L. Boegehold, head, metallurigcal department, General Motors Research Lab., Detroit, is cooperating closely with the directing staff at Battelle in planning Mr. Herres' work. Mr. Herres who has recently been working in the foundry of the Mack Truck Co., New Brunswick, New Jersey, on

Schuyler Herres

cupola and sand control and in the laboratories, is a graduate of Colorado School of Mines, receiving his E. Met. degree in 1939. While in school he was a member of Theta Tau, Scabbard and Blade, Blue Key and Beta Theta Pi fraternities, and the student branch of A.I.M.E. Born in Denver, he attended the public schools and Westminster Junior College at Salt Lake City.

Past President C. R. Messinger Dies

1883 — 1941

CHARLES RAYMOND MESSINGER, who served as the 23rd president of the American Foundrymen's Association in 1923, died at his home in Milwaukee on February 4. Mr. Messinger was president of the Chain Belt Co., chairman of the board of the Oliver Farm Equipment Co., and an officer and director of many other corporations. He was 57 years old.

Mr. Messinger had been long associated with the foundry industry and the American Foundrymen's Association. He was elected a director of A.F.A. in 1916, vice president in 1920 and president in 1922. Following his presidency, he served as a member of the Board of Awards and of the Advisory Board of the Association.

Mr. Messinger was born in New Haven, Conn., and received his higher education in the Sheffield Scientific school, Yale University, from which he was graduated in 1906. Following graduation, he became associated with the Harbison-Walker Refractories Co. in Pittsburgh and Chicago. Three years later, he went to Milwaukee to assume the general managership of the Sivyer Steel Casting Co., later becoming vice president and finally president. In 1930, when his company absorbed the Nugent Steel Casting Co., Chicago, he was made chairman of the board. In 1916, he was made a director of the Chain Belt Co., Milwaukee, and was appointed secretary of the Federal Malleable Co., Milwaukee, and later vice president. In 1917, he was made general manager of the former company and rose to the presidency in 1923. In 1931, he was also made president of the Oliver Farm Equipment Co. and became chairman of the board three years later. He was also associated closely with other Milwaukee companies, at one time in his career being president of the Interstate Drop Forge Co. and a director of several banks.

During the present National Defense program, he took part in the work of the Army ordnance department as Active Assistant District Chief of the Chicago Ordnance District.

Notes on Foundry Sand Research—II

By Dr. H. Ries, Ithaca, N. Y.

THIS is the second section of the report of the Technical Director, Foundry Sand Research Committee of the American Foundrymen's Association. The first section, published in the February issue of American Foundryman, pages 11-13, presented comments on preparation of sand samples, use of testing apparatus, and discussion on such subjects as the sand fineness test, life of sieves, A.F.A. clay determinations, fineness number, distribution factor and grading. In this the second section, the author continues his discussion of similar subjects and, in addition, points out some of the troubles caused by improper testing technique and explains the tests which are now being investigated by the committee.

Character of Clay—Some have suggested that we should know more about the character of the A.F.A. clay, and accomplish this by separating it into its two main components. It includes all particles up to 20 microns in size, and is made up of fine silt grains (0.02-0.005 mm.) and true clay particles (0.005 mm. and under). The former do not have the bonding power of the latter. Therefore, we can understand that two sands of the same grain distribution, and the same amount of A.F.A. clay might show a difference in strength, depending on the proportions of fine silt and true clay particles which they contain.

It would not be a difficult matter to determine these separately with a pipette or hydrometer. With the former, it would require a reading at the end of 5 min. to get A.F.A. clays, and some time longer for determination of true clay.

Green Deformation—It seems to be a question whether or not the property of green deformation is given as much attention by foundrymen as it deserves; indeed a rather wide difference of opinion is expressed by different ones regarding the importance of such a test.

Attention was called to this property in a paper by Dietert[4] in 1936, in which some of the practical bearings of the green deformation test are shown.

As said by some, the manner of using the sand may have a great deal of bearing on the value of the green deformation test. In view of the fact that some foundrymen have doubts regarding the

[4] Dietert, H. W. and Dietert, R. A., *"Deformation and Resilience of Molding Sand,"* A.F.A. Transactions, vol. 44, p. 139, 1936.

value of this test, it may be well to give the opinions of several who use it extensively.

One writes, green deformation ". . . is directly related to the ability of sand to resist a tendency to crush under load. It is a property of the sand which encourages or prevents crushes in foundry practice. Crushes may be due to improper pattern equipment, improper manufacture of pattern itself or manipulation of operator in placing cope on drag. In latter case, if cope does not come down horizontally, or flask pins are loose, it is very apt to cause a crush unless sand is able to deform sufficiently."

Cope drops and broken edges of molds, when drawing patterns, may be due to sand being too brittle, even though having sufficient green compressive strength. Green deformation should show the trouble.

Another operator writes: "Deformation shows 'liveness' or 'deadness' of a facing. A sand mix with dead feel may test all right for green compression and moisture, and yet be unfit for foundry use. If mulled longer, it may gain life and deformation rise proportionately. If, on the other hand, the mixture is mulled too long, it may ball up in the mill and deformation rise too high. Hence, deformation may serve as a check on the sand as well as the efficiency of the mill operator."

It is stated by one operator that, "Low deformation has caused us to experience the following: (1) Rough mold surface when pattern drawn from sand, (2) mold surface erodes easily when cleaning with compressed air, (3) mold hard to finish, making molders complain of poor quality facing, (4) after air drying, sand grains slough off leaving a very weak sand and causing dirty castings, and (5) mold has strong tendency to crush on closing."

"With deformation values high, the sand rams with difficulty and a low mold hardness is experienced in spots causing swells on the castings."

"If moisture is constant and compressive strength increases while green deformation decreases, it may be an indication that mill operator has added bond to get the proper feel."

As illustrative of the bearing of green deformation on the behavior of sand, the following test data on the same sand obtained on two different days may be quoted.

	Moist.	*Green Comp. lb. per sq. in.*	*Green Shear lb. per sq. in.*	*Green Perm.*	*Mold Hard.*	*Deformation-in.*
1	4.1	8.1	2.5	150	76	0.015
2	4.2	7.3	2.4	150	72	0.030

Disregarding green deformation, No. 1 would seem to be superior, but if used would show excessive sloughing off, and washing during pouring. No. 1 castings would be dirty and No. 2 clean. It would seem as if the difference in green deformation is the cause.

Tensile Strength—It appears that this test is not used as often as the green compression test, although some foundries specify it. Others use both tensile strength and green compression in laboratory tests. Some foundrymen believe that it gives no information not given by the green compression test.

One opinion expressed is that in brittle sands, the tensile strength is relatively lower than green compression.

Some believe that the green tensile strength test is more important for checking trouble in plate or brass sands of 180 or greater average fineness. It is thought in this connection that the tensile strength of fine sands gives a more accurate indication of active clay content than does the compression strength, as the "fines" in the sand create more compression than tensile strength. Furthermore, the tensile strength decreases more rapidly than the compression strength as the sand successively burns out.

General Comments on Strength Tests—The compression strength test is the most widely used, and usually appears to give sufficient information. Unless there is some special reason, additional kinds of strength tests are not necessary. The Committee on Standard Tests has no intention of recommending that all these tests should be made on the same sand, but has prescribed a standard method for making each one of these strength tests where it seems desirable to use them.

Troubles Caused by Improper Technique

a. Ramming—There is no more widely used step in clay testing than the preparation of the standard specimen by ramming, and the Foundry Sand Research Committee has made every effort to get this standardized. In the Handbook of testing[1] attention was called to the fact that *the character of the support has some influence on the test results*, and in the A.F.A. *Transactions*[5] a number of figures were given to emphasize this point. Nevertheless, it has been found that there is some laxity in this matter. For this reason, attention is again called to the fact that the rammer base *should rest on and be fastened to a firm nonyielding support.*

It is found, for example, that if the rammer base is bolted to a concrete base, a solid wood timber support or a thick heavy iron plate, the best results will be obtained. A yielding support means less intense ramming and the same sand will, under such conditions, show higher permeability and lower compression-strength figures.

b. Specimen Tubes—Care should be given to specimen tubes to see that the inner surface is kept perfectly smooth, otherwise variation in results of strength tests are likely to occur.

c. Clay Separation—The viscosity of water decreases with a rise in temperature. Consequently, particles of a given size may settle more rapidly in warmer water. Therefore, two clay determinations might not agree if made with water of different temperatures. This may account for some of the discrepancies that are sometimes noticed when comparing the results of two different operators.

[5] *Report of Committee on Sand Tests, Transactions,* American Foundrymen's Association, vol. 35, p. 182 (1927).

Tests Under Investigation

Sintering Test—Although the Committee several years ago suggested a sintering test and attempted to recommend a method for making the same, there has been a lack of uniformity in interpreting the results obtained, and a new Subcommittee is now at work attempting to improve the technique of the test.

Core Hardness—The Subcommittee appointed to recommend a method for determining this property suggests the use of a hard metal plow which protrudes through a slot in a plate. This plate is drawn across the surface of the core, and the projecting plow causes a scratch whose depth depends on the hardness of the core. The plow is spring loaded, and can be connected with a dial indicator which shows the depth of penetration.

Durability and Flowability are two properties for which no test has yet been recommended by the Committee. Both represent important problems not yet satisfactorily solved. Subcommittees have been appointed to study them.

Definitions—With the development of high-temperature tests, it has become necessary to formulate terms to be used in referring to the properties and behavior of sands when heated. Certain terms now in the glossary of the Handbook of Testing have also been clarified. The Subcommittee appointed for this purpose has presented a report which is shown in the 1940 Bound Volume *Transactions*.

Tests of Steel Sands at High Temperatures—Following last year's Convention there was issued a progress report by Subcommittee 6b7, outlining the work that had been done on the mixtures specified by it. Since the publication of this report, some further work was done on cereal-bentonite mixtures. G. W. Ehrhart, graduate student in Mechanical Engineering, Cornell University, Ithaca, N. Y., has been carrying on some interesting tests on the expansion at high temperatures of the mixtures previously tested. He also has developed a furnace for correctly and accurately determining the expansion of sands at high temperatures.

The Subcommittee has approved a program for further work in which more effort will be made to determine the effect of individual constituents of steel-sand mixture.

Raw Materials—Naturally bonded sands are found at a number of localities in the eastern half of the United States. They are less well known in the western states. Silica sands, however, are much scarcer. There are abundant supplies in Illinois, New Jersey, Pennsylvania, and other central states.

Along the Pacific Coast, however, high grade silica sand is scarce, and the three chief sources of supply have been Belgium, Illinois and Southern Nevada. The first of these sources is shut off at present, and replaced chiefly by Illinois. The last one (Nevada) is particularly used by the Southern California foundries.

Some silica sand is obtained north of San Francisco in Contra Costa County, but most of the sandstone available in California contains too much feldspar mixed with the quartz, and therefore is regarded as unfit for steel-sand mixtures.

In the East, where feldspar is mined for ceramic purposes, and is contaminated by quartz, it has been found possible to separate the two by flotation. It is here suggested that this process might be considered for getting a high silica product from the feldspathic sandstones.

Another suggestion which can be taken for what it is worth is this: The fusion point of the feldspar grains in the sandstones referred to is about 1350°C. (2462°F.). If synthetic mixtures are used for casting metals at a lower temperature than steel it might be worth while to experiment with these sands in that connection.

Specifications—This is a matter which does not really concern the Foundry Sand Research Committee, for, as previously mentioned, it is the function of the Committee to recommend tests for determining the properties of sand. However, brief reference may be made to specifications used.

Study of the purchase specifications issued by several dozen foundries shows no uniformity as to properties mentioned or tolerances allowed.

In the case of silica sands, some specify the entire sieve test and in some cases note a tolerance permitted on each sieve. Others may specify an allowable maximum on the coarser sieves, and an allowable maximum through 100, and perhaps a maximum retained on three or four adjacent sieves. This last is a condition which is probably easiest for the producer to meet. A few consumers specify the shape of sand grains. Not a few note fineness number for any type of sand.

When it comes to naturally-bonded sands, we find permeability, green compression, shear strength, and clay content mentioned in specifications, but there is no uniformity of demand nor any uniformity of allowed tolerance where this or any other property is mentioned.

It might be well to suggest that in drawing specifications one should bear in mind the desirability of including only necessary tests.

Future Problems—There is still much to be done in the study of molding sands. We have recognized certain properties and we have set up methods whereby most of these properties can be tested. Others are in preparation. There is still much work to do in determining the causes of the differences in behavior of different sands and mixtures. It is also possible that there is a relationship between certain properties not hitherto suspected. To get at the solution of these problems calls for much painstaking work, involving the study of numerous mixtures under varying conditions. Work of this sort undertaken to determine the effect of different constituents and different conditions should be so carried out that we have at first to deal with only *one variable*, and work from simple to more complex conditions.

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Henry W. Meyer, Sand Research, General Steel Castings Corp., St. Louis, Mo.

*Company.

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Joe Maisano, Main Floor Molder, Kinney Iron Works, Los Angeles, Calif.
Jack McGowan, Salesman, H. E. McGowan Co., Los Angeles, Calif.
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Gustav E. Hintz, Foreman, Allis-Chalmers Mfg. Co., Milwaukee, Wis.
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Frank Turow, Sales Engr., Metro-Nite Company, Milwaukee, Wis.
Carl Van Buren, Foreman, Allis-Chalmers Mfg. Co., Milwaukee, Wis.
E. T. Wilander, Chicago, Ill., Sales Engr., Hercules Powder Co., Wilmington, Del.
Harold B. Zuehlke, Centrifugal Casting Foreman, Allis-Chalmers Mfg. Co., West Allis.

Outside of Chapter

James H. Anderson, Student, University of Minnesota, Minneapolis, Minn.
Leo J. T. Brom, Student, University of Minnesota, Minneapolis, Minn.
J. A. Havnen, Student, University of Minnesota, Minneapolis, Minn.
George E. Herbst, Open Hearth Foreman, McConway-Torley Corp., Pittsburgh, Pa.
*Homer Furnace & Foundry Corp., Coldwater, Mich. (R. G. Waldron, Gen'l Mgr. & Treas.)
Donald Arthur Johnson, Student, University of Minnesota, Minneapolis, Minn.
John H. Kaufman, Fdry. Supv., Sealed Power Corp., Muskegon, Mich.
Le Roy Kelman, Student, University of Minnesota, Minneapolis, Minn.
William A. O'Brien, Fostoria, Ohio, Electric Auto Lite Co.
Rudolph Schummer, Student, University of Minnesota, Minneapolis, Minn.
Edwin C. Young, Fdry. Engr., Sealed Power Corp., Muskegon, Mich.

*Company.

Chesapeake Chapter Wins for Third Consecutive Month

EIGHTY-EIGHT (88) membership applications were received during the month of January, a fine beginning for the first month of the new year.

The Chesapeake Chapter carved its name for the third time on the membership trophy by adding 16 new members during the month. This number, added to the 39 previously signed up, gives this chapter a total of 55 new members. There were 48 members in the Chesapeake chapter area before the chapter was organized, so it now has a membership of over 100.

The Wisconsin Chapter refuses to relinquish its grip on second place. In January, it added 15 new members to the 24 previously sent in during the drive. Its total membership as of January 31, 1941, is 233 members.

Northeastern Ohio moved up into third place adding 10 new members to the 22 previously enrolled, making its total membership 313 as of January 31, 1941.

Central New York, Western New York, Metropolitan and

(Continued on page 25)

A.F.A. Membership as of Jan. 31, 1941

	Sus.	Co.	Personal	Affiliate	Apprentice	Student	Associate	Honorary Life	Chapter Membership
Birmingham	3	34	31	167	0	0	3	1	239
Canadian Section	1	18	6	10	0	0	2	0	37
Central Indiana	2	30	11	77	0	0	0	0	120
Central New York	1	21	20	49	0	0	8	1	100
Chesapeake	3	21	16	40	0	0	23	0	103
Chicago	10	88	41	223	9	2	20	6	399
Cincinnati	3	45	11	75	0	0	1	1	136
Detroit	2	51	39	118	0	0	14	5	229
Metropolitan	2	45	27	63	0	0	9	0	146
Michiana	1	22	6	38	0	0	2	0	69
Northeastern Ohio	11	97	42	151	0	0	6	6	313
Northern California	0	12	47	31	0	0	4	0	94
No. Illinois-So. Wisconsin	0	13	6	22	0	0	1	0	42
Ontario	0	39	28	20	0	0	1	1	89
Philadelphia	4	61	31	79	0	0	6	3	184
Quad-City	2	29	15	63	2	0	5	2	118
St. Louis	2	45	33	43	0	0	3	0	126
Southern California	0	34	30	55	0	0	3	0	122
Western New York	2	36	28	70	0	0	3	2	141
Wisconsin	15	55	31	119	2	0	8	3	233
Total in Chapters	64	796	499	1513	13	2	122	31	3040
Total Outside of Chapters	10	190	115	168	0	6	23	11	523
Foreign	---	.....	.....	.....	---	---	.....	.....	152
Book Membership 1-31-41	74	986	614	1681	13	8	145	42	3715

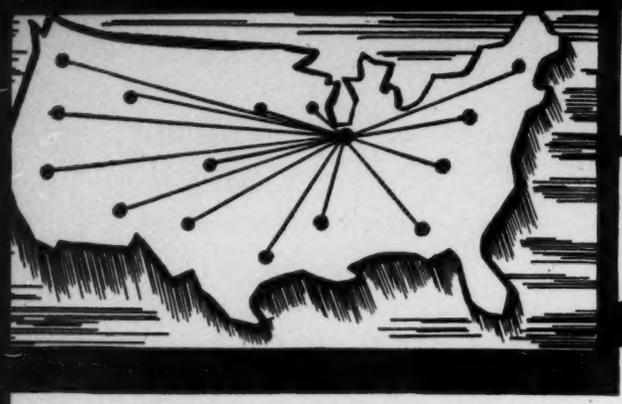
Membership Contest Standing

From July 1, 1940, to Jan. 31, 1941

Place	Chapter	Sustaining	Company	Affiliate	Personal	New Members	Contest Total Points
1st	Chesapeake	1	6	41	7	55	1225
2nd	Wisconsin	0	8	27	4	39	925
3rd	Northeastern Ohio	0	8	18	6	32	850
4th	Central New York	1	2	27	1	31	635
5th	Western New York	0	4	17	5	26	605
6th	Metropolitan	0	3	17	5	25	555
7th	Southern California	0	4	12	4	20	500
8th	Birmingham	0	1	15	2	18	335
8th	Detroit	0	1	7	6	14	335
9th	St. Louis	0	1	4	7	12	320
10th	Chicago	0	0	12	4	16	300
11th	Cincinnati	0	4	4	0	8	260
12th	Northern California	0	0	9	4	13	255
13th	Quad City	0	2	8	0	10	220
14th	Michiana	0	1	5	2	8	185
15th	Ontario	0	2	3	1	6	175
16th	Philadelphia	0	0	7	2	9	165
17th	Central Indiana	0	1	3	1	5	125
18th	No. Illinois-So. Wisconsin	0	1	1	0	2	65
		2	49	237	61	349	8035

Points Awarded on Memberships

Sustaining	100	Personal	30
Company	50	Affiliate and Associate	15



Chapter Activities

Western Michigan Foundrymen Discuss Chapter Organization

ON FEBRUARY 3, a group of nearly 100 foundrymen from Battle Creek, Cadillac, Muskegon, Sparta, Grand Haven and Grand Rapids in the Western Michigan area, gathered at the Occidental Hotel, Muskegon, Mich., to discuss the organization of a chapter. The interest in this project is illustrated by the attendance and by the unanimous decision of those present to petition the Board of Directors of your Association that a chapter be formed. Interest in the chapter movement in the area was stimulated and plans for the meeting were made by a committee composed of: Don F. Seyferth, works manager, West Michigan Steel Foundry Co., *Chairman;* E. W. Beach, Campbell, Wyant & Cannon Foundry Co.; J. O. Ostergen, Lakey Foundry Co.; Max Amos, metallurgist, Standard Automotive Parts Co.; and P. S. Lane, research engineer, Muskegon Piston Ring Co., all of Muskegon.

Western Michigan foundrymen meet to petition for A.F.A. chapter. (Upper left)—Left to right: V. C. Bruce, J. C. Jensen, L. P. Robinson, J. DeBoer and E. W. Glaser. (Left center): Jack Livingston on left with others from Blackmer Pump Co. (Lower left)—Left to right: A. W. Gregg, Gordon Creusere and H. W. Meyer. (Upper right): Don Seyferth, works mgr., West Michigan Steel Foundry Co., presiding as chairman of the organization meeting. (Right center): Group from Campbell Wyant & Cannon Foundry Co. (Lower right): E. G. Carter, president, Standard Automotive Parts Co., on left with others from Muskegon district at meeting.

Robinson Presents Talk on "Practical Core Room Methods"

Following the dinner, the meeting was called to order by Mr. Seyferth, as chairman of the local committee. To get everyone acquainted, he asked those present to rise and give their name and company connection. Following the introduction of out-of-town guests, the chairman introduced L. P. Robinson, Werner G. Smith Co., Cleveland, a director of your Association and a past chairman of the Northeastern Ohio chapter, who spoke on "Practical Core Room Methods." Mr. Robinson's talk centered around the difficulties that are encountered in the core room due to improper production methods and inspection which result in defective castings.

Following Mr. Robinson's talk, there was a short discussion period. The chairman then called on R. E. Kennedy, secretary of the Association, who discussed the procedure of chapter organization and explained the value to be derived from such an organization. V. C. Bruce, Buckeye Products Co., a member of the Michiana chapter, explained some of the activities in which that chapter engaged, as did A. W. Gregg, Whiting Corp., Harvey, Ill., concerning the Chicago Chapter. As an introduction to his talk, Mr. Robinson outlined the success of the Northeastern Ohio chapter and the effect it had on the industry in that area.

Directors Nominated

Following these talks, Chairman Seyferth presented the following list of men for consideration as directors of the proposed new chapter and who will be voted on at the March 3 meeting:

A. E. Jacobson, Grand Haven Brass Foundry, Grand Haven; J. W. Livingston, Blackmer Pump Co., Inc., Grand Rapids; C. P. Ziegler, Grand Rapids Foundry, Grand Rapids; E. W. Beach, Campbell, Wyant & Cannon Fdry. Co., Muskegon; E. G. Carter, Standard Automotive Parts Co., Muskegon; F. J. Buckley, Kalamazoo Fdry. & Mach. Co., Kalamazoo; O. G. Jentsch, Wolverine Brass Works, Grand Rapids; C. M. Clover, Clover Foundry Co., Muskegon; R. J. Teetor, Cadillac Malleable Iron Co., Cadillac; C. J. Lonnee, Muskegon Piston Ring Co., Sparta Foundry Division, Sparta; Geo. W. Cannon, Jr., Campbell, Wyant & Cannon Fdry. Co., South Haven; and J. C. Jensen, Battle Creek Foundry Co., Battle Creek.

Vice-President Addresses Special Northern California Meeting

By G. L. Kennard*, San Francisco, Calif.

THE Northern California chapter's special meeting, January 31, was called to honor Herbert S. Simpson, Vice President, American Foundrymen's Association, and president, National Engineering Co., Chicago, who was making a tour of the Pacific Coast, meeting with the two chapters in California as well as contacting foundrymen in the industrial centers of the Northwest.

A fine turnout of members and friends were present to meet Mr. Simpson, who was introduced by Chairman Ivan L. Johnson, Pacific Steel Casting Co., Berkeley. The rapid change in national affairs and his recent visit to Washington, on defense matters, called for recognition, and a strong plea that we give first thought to guarding our American interests, and for foundrymen to do their utmost to produce better castings to meet the needs of the defense program.

Mr. Simpson did not say that foundrymen were suffering from an inferiority complex regarding their product, but did say that, in general, there was little effort being made to hold their business and educate the public in the superiority of castings over the many methods and substitutes that are being promoted. On this point, he granted there were exceptions to this lack of promotion, and cited some sales promotion work that was being carried to the point of "dramatizing castings" which was having a wonderful effect. He implied that to "think well of yourself and others will think well of you" is a good motto for foundrymen to follow. He covered the subject of selling castings by piece and by pound, and accused the latter method as responsible in many instances for practically giving castings away. He recommended interchange of plant visits; also plant visits by customers as one means of needed education in the dependability of castings. He advocated training of well-prepared men for foundry salesmen who could point out to customers the folly of buying on a price basis as against quality.

Mr. Simpson complimented the chapter (of which he is the accepted godfather) on its sturdy growth, and spoke of the advantage of foundry fraternalism which the chapters fostered.

*Northern California Foundrymen's Institute, and Secretary-Treasurer, Northern California chapter.

National Officers and Dr. Burgess on Cincinnati Program

By Henry M. Wood*, Cincinnati, O.

THE Cincinnati Chapter turned out enthusiastically to greet President L. N. Shannon, who came from Birmingham, and Executive Vice President C. E. Hoyt, who made the trip from Chicago. The meeting was held at the Hotel Metropole with chapter chairman H. F. McFarlin, Lunkenheimer Co., pre-

*W. W. Sly Mfg. Co., and Secretary, Cincinnati District Chapter.

Members and guests present at Muskegon-Grand Rapids chapter organization meeting held February 3 at the Hotel Occidental, Muskegon. At the speakers' table (left to right): E. W. Beach, Campbell, Wyant and Cannon Fdry. Co.; L. P. Robinson, Werner G. Smith Co., who spoke at the meeting; D. F. Seyferth, West Michigan Steel Foundry Co., meeting chairman; R. E. Kennedy, secretary, A.F.A.; Max Amos, Standard Automotive Parts Co.; and N. F. Hindle, assistant secretary, A.F.A.

siding. During the latter half of the dinner, a sound motion picture film "Foundry Pouring Progress" was presented by the Modern Equipment Co.

Chairman McFarlin presented our guests of honor. President Shannon gave an impressive account of the accomplishments and aims of A.F.A., and advantages of memberships in A.F.A. Executive Vice President Hoyt favored us with reminiscences of foundry shows and conventions, including the first convention he attended, the date of which is "off record."

Dr. Burgess' paper was necessarily of a technical nature, with various data and curves and reproductions of photographs shown with slides and to illustrate his various remarks upon the effects of different alloy additions to gray iron. Judging from the interest in Dr. Burgess' paper, and the spirited discussion which followed, the members present wanted that sort of technical information.

Philadelphia Hears Dr. Woldman Discuss Aviation Castings

By J. T. Fegley*, Philadelphia, Pa.

THE January 10 meeting of the Philadelphia chapter was attended by some 132 local foundrymen who had come to hear Dr. Norman E. Woldman, chief metallurgical engineer, Eclipse Aviation Division, Bendix Aviation Corporation, Bendix, N. J., talk on aviation castings. The meeting was addressed first by one of Uncle Sam's foremost "G" men, J. F. Sears, charge of the Philadelphia district, who told of the workings of the F.B.I. Mr. Sears was introduced by Lee Harris, Link Belt Co.

Harry Reitinger, chapter vice-chairman, U. S. Pipe & Foundry Co., Burlington, N. J., presided in the absence of Chapter Chairman Roger Keeley, Ajax Metal Company.

Dr. Woldman presented a paper on "Castings in the Aviation Industry." He stated that the constant demand through the development of the aircraft industries has been for stronger and lighter alloys. Aluminum, next to magnesium, is the lightest of the commercially-used metals and when alloyed with other elements, it becomes most suitable for use in aircraft.

Aluminum casting alloys might be classed into four groups: (a) sand castings; (b) permanent mold castings; (c) die castings; and (d) plaster of paris mold castings.

These alloys could be further subdivided into heat-treatable and non-heat treatable alloys. Non-heat treatable alloys are those in which the improvement in properties is accomplished by alloying alone. In the other classification, heat treatment processes are used to enhance further the mechanical properties.

Sand molds are used for large or for intricately cored castings. Because a metal mold or steel die is required, the use of die and permanent mold castings can be considered only where a sufficiently large number of castings of the same pattern will be used. The die casting process is particularly adapted to the quantity production of relatively small castings in which close dimensional tolerances are required. Plaster of paris mold castings are similar to sand castings but with smoother surface and closer tolerances.

Dr. Woldman's paper covered the years of research in the development of the various percentages of copper and aluminum, silicon and aluminum, magnesium and aluminum, and copper-silicon-magnesium alloys, and how each one must be considered and used wherever these alloys show superior characteristics to be almost universallv adopted in this fast growing industry.

Dr. Woldman's paper was received in a most acceptable manner as evidenced by the discussion that followed which was led by our technical chairman, Dr. Clamer, Ajax Metal Co.

*North Bros. Mfg. Co., and Chairman, Publicity Committee.

Northeastern Ohio Hears Vanick and Entertains National Officers

By Pat Dwyer*, Cleveland, Ohio

THE second session in the new year of the Northeastern Ohio Chapter, February 13, at the Tudor Arms, welcomed the national President L. N. Shannon, Stockham Pipe Fittings Co., Birmingham, Ala., and Executive President C. E. Hoyt, Chicago. In addition to chairman Ray Fleig, Smith Facing and Supply Co., and vice chairman F. J. Dost, Sterling Foundry Co., Wellington, O., four former chapter chairmen, F. G. Steinebach, *The Foundry;* B. G. Parker, Youngstown Foundry & Machine Co., Youngstown, O.; L. P. Robinson, Werner G. Smith Co., and E. F. Hess, Ohio Injector Co., Wadsworth, O., sat at the same table with past president B. D. Fuller, Whitehead Bros. Co., and A.F.A. board members H. S. Hersey, C. O. Bartlett & Snow Co., and F. J. Walls, International Nickel Co., Detroit.

The technical speaker of the evening was James S. Vanick, International Nickel Co., New York, who presented a highly interesting lecture illustrated with a number of slides on the engineering properties of cast iron. Although the adoption of specifications grading cast iron on the basis of tensile strength is one of the outstanding achievements in cast iron metallurgy during the past 20 years, he claimed these specifications supported jointly by A.S.T.M. and the A.F.A. do not answer all the re-

*Engineering Editor, *The Foundry*.

quirements of the engineering trades. For example there are a dozen ways to meet a No. 40 strength specification and the resulting castings will be tough, stiff, open grained or hard, unmachineable or too soft. These deficiencies can be remedied by defining the composition desired which helps to establish the combination of related properties required in the casting.

The speaker pointed out that in a general way a relationship exists between tensile, transverse and other tests, but it is not definite. In developing his theme he referred to practically all types of test bars and methods of testing, tensile, transverse, hardness, torsion, shear, damping capacity, fatigue and impact. He emphasized the necessity of extreme accuracy in conducting the tests since an apparently trifling detail might throw out the entire calculation or comparison. He outlined typical compositions, chemical and physical properties of a wide range of castings and directed attention to the fact that a similar composition shows marked differences in physical properties when poured into a thin or thick section.

White Addresses Crowd at Pittsburgh Meeting

By R. L. Hartford*, Pittsburgh, Pa.

LARGEST meeting of the year thus far, the January session of the Pittsburgh Foundrymen's Association, was devoted to steel foundry practice for the most part and attracted an attendance of 125 members and guests.

Principal speaker was Walter H. White, Pittsburgh Rolls Corp., who talked on personnel problems in the light of present day problems in the steel foundry, and with the aid of a number of slides, illustrated some of the problems met in the production of castings for use in ordnance construction. In the latter section of his talk, Mr. White described solution to many problems met in production of shells, large parts for heavy artillery carriages and similar war-time jobs. Physical testing procedure used in some of these applications was described.

A sound-slide film outlining correct design procedure for manufacture of successful steel castings was also featured on this program. Prepared by the Steel Founders' Society, the film described the basic principles of design, emphasizing the effects of improper design on production difficulties and indicating, through polarized stress diagrams, the effects of design on the strength of castings.

*Penton Publishing Co., and Chairman, Program Committee, Pittsburgh Foundrymen's Association.

Northern California Discusses Sand

By G. L. Kennard*, San Francisco, Calif.

IT WASN'T exactly a Valentine party, although it was held on February 14—one of those rainy nights when we all like to be cozy at home. The program as announced was the only drawing card—no follow-up, no coercion, no phone calls.

There were 59 present at the Lake Merritt Hotel, Oakland, and 36 of them were fellows who really do things in the shops and who came to learn. After breaking up into sections, gray iron, non-ferrous and steel, to discuss the subject of sand, the secretary checked up and found a total of 52 in attendance.

The meeting was presided over by Chairman Ivan Johnson, Pacific Steel Casting Co., Berkeley, assisted by Clarence Henderson, H. C. Macaulay Foundry Co., Berkeley, past chairman and dean of the chapter. The program chairman, Jim Francis, Vulcan Foundry Co., Oakland, was responsible for the showing of a U. S. Bureau of Mines motion picture on "Oil Lands of Europe and Africa." Ben Page, F. K. Simonds Co., Berkeley, Jim Scott and Ray Wilson were in charge of the iron, non-ferrous and steel section discussions.

*Northern California Foundrymen's Institute, and Secretary-Treasurer, Northern California Chapter.

Reichert Draws Crowd to Toledo Meeting

AN ATTENDANCE of ninety foundrymen at the meeting at Toledo, February 17, was a tribute to interest in sand control as discussed by William G. Reichert, American Brake Shoe and Foundry Co., Mahwah, N. J.

The meeting, held at the Hillcrest Hotel, was the first gathering of its kind in the Toledo district, and was sponsored by the A.F.A., with the cooperation of a local member committee headed by D. E. Hensley, Southern Wheel Div., American Brake Shoe & Foundry Co. Serving with Mr. Hensley were R. L. Binney, Binney Castings Co.; Roy Clark, Toledo Machine & Tool Div., E. W. Bliss Co.; L. M. Long, Bunting Brass and Bronze Co., and E. C. Mathis, Pickands Mather & Co.

In addition to attendance from Toledo, foundrymen from Adrian, Monroe and Coldwater, Mich., and Fostoria, Conneaut, Fremont and Defiance, Ohio, were present, while the Northeastern Ohio and Detroit Chapters had official representation.

Chairman Hensley in opening the meeting, presented R. E. Kennedy, secretary of A.F.A., who briefly discussed Association activities. He then introduced Ray Fleig, chairman, and Frank Steinebach, past chairman of the Northeastern Ohio Chapter; V. C. Bruce, director of Michiana Chapter; Ed Burke, Detroit Chapter, all of whom extended greetings to the Toledo meeting.

Mr. Reichert in his talk gave a clear picture of the practical value of sand control in the present-day foundry, outlining the factors to observe, showing the importance of use of good common sense with the aid of test methods developed by the A.F.A. Sand Committee.

The discussion following the talk brought out answers to several problems confronting those present. The success of this meeting will lead to the arranging of others.

Chicago Chapter Holds Equipment Night Session

By B. L. Simpson*, Chicago, Ill.

THE Chicago Chapter, with chapter chairman Garnett Phillips, metallurgist, International Harvester Co., presiding, had a very large attendance at their February 10 meeting, Chicago Towers Club. The meeting was highlighted by the participation of eight foundry equipment manufacturers in telling the chapter about their product. The meeting, and official time keeping, was under the direction of James S. Thomson, Continental Roll & Steel Foundry Co., East Chicago, Ind.

First on the list was the Modern Equipment Co., Port Washington, Wis., which, by means of a movie, presented by their sales manager, W. J. Knappe, indicated installations showing recent ladle handling developments.

This was followed by H. L. Purdon, Link Belt Co., Chicago, who explained to the foundrymen his company's line of foundry conveyors and handling equipment.

A. E. Rhoads, manager, Detroit Electric Furnace Div., Kuhlman Electric Co., Bay City, Mich., then presented a series of slides with the emphasis on the use of the automatic rocking electric furnace in brass and iron foundries.

This was followed by O. F. Weiss, Milwaukee Foundry Equipment Co., Milwaukee, Wis., who explained some of the recent developments in molding machines, particularly in view of recent defense program.

The committee then presented Nathan Janco, Centrifugal Casting Machine Co., Tulsa, Okla., who, by means of slides, indicated the various types of steel castings possible by the centrifugal casting method.

A. E. Maehler, president, Paul Maehler Co., Chicago, by means of an illustrated and activated electric sign, explained the heating units for his company's line of recirculating core ovens.

The chapter was then privileged to witness illustrations on blast cleaning methods with particular emphasis on lowering of costs by increasing production. This talk was presented by A. L. Gardner, advertising manager, Pangborn Corp., Hagerstown, Md.

The last speaker on the program was J. Y. Richards, Sullivan Machinery Co., Michigan City, Ind., who explained in detail, again by means of slides, the recent developments in air compressors, dwelling particularly on the improved construction recently made available by his concern.

The speakers were limited in time but created quite an interest among those foundrymen present who had come to hear of these new foundry developments. It was called by many present one of the most interesting and successful meetings of this type.

*National Engineering Co., and Secretary, Chicago chapter.

Pat Dwyer Helps Ontario Set Attendance Record

By G. L. White*, Toronto, Can.

THE meeting of Ontario Chapter on January 31st, at the Royal York Hotel, Toronto, set a new record for attendance with over 140 present. Contributing to this were a number of factors, including steadily growing interest in the activities of the group, the vital importance of the subject "Gating Problems" in the production of sound castings, the opportunity offered to foundrymen to present their own troubles in gating, and last but by no means least, the presence of Pat Dwyer of *The Foundry* as leader of the discussion. Mention should also be made of the fine job done by Vice-Chairman N. B. Clarke, Steel Company of Canada, Ltd., in getting together from various foundries an excellent series of slides showing systems of gating which had caused trouble and the gating adopted to overcome each problem.

Chapter Chairman D. M. Storie, Fittings, Ltd., Oshawa, presided at the meeting which featured a brief entertainment program in addition to the technical discussion.

Gating Examples Shown

Undoubtedly one of the reasons for the interest in a practical discussion of how gating problems are overcome is the fact that it is almost impossible to set down any general rules which will enable the foundry to gate castings properly. When a new casting is encountered, its proper gating must be resolved largely into elements of wide experience and trial of likely procedures.

A typical illustration of the improvements which may be effected through a change in gating and risering was a 660-pound casting made with an iron containing 1% nickel, 0.3% chromium, 3.35% total carbon, and 1.50% silicon, which developed a crack with the appearance of a shrink varying in width from ¼ to ½ inch and extending as much as 3 inches into the casting. In the first attempt to correct the condition, the casting was made as before with gate entering at the bottom but with two 4" risers in place of one 7" riser. The same type of defect was encountered.

In the second attempt the casting was made the other way up with the core in the cope, gated at the bottom, and with two 4" risers on the top but the result was the same. Finally the casting was made, gated at the top and with four 4" risers approximately 14" high. The defect that was encountered in the other methods was thus eliminated. This problem was submitted by

J. C. Stavert, Babcock-Wilcox and Goldie-McCulloch, Ltd., Galt, Ont.

The next case which was submitted by D. J. Macdonald, Standard Sanitary and Dominion Radiator, Ltd., showed how a change in gating overcame dirt wash and scabbing in a boiler casting which was originally gated from the center. The gating which gave good results fed into the mold through eleven openings extending almost half way around the circumference.

A Problem Not Solved

A problem for which no solution had been discovered involving the casting of couplings was presented by A. E. Bock, Sheldons, Ltd., Galt, Ont. Dirt and shrinks were occurring around the 7/8" core and were generally found at an angle of about 90 degrees to the point of entry of the metal into the mold. Various means of gating and a different position of the casting were tried, along with changes in metal composition without eliminating the difficulty. One suggestion made was the shrinks were due to differences in section in the part, and that they might be overcome by casting the coupling solid and boring out the hole required afterward.

With conventional gates at the side, a 300-pound aluminum casting submitted by Joe Sully, Sully Brass Foundry, Ltd., gave no end of trouble. Employing pencil gates which carried the metal rapidly and evenly to all parts of the casting, most of the defects were cured with a minimum of risering.

A gear case casting by Cockshutt Plow Company was originally gated at the parting line with a standard gate, with very poor results. A drawing accompanying this problem showed how a ram up core with ten holes was used on top of the casting with very satisfactory results.

Multiple Gating

An interesting problem which added weight to the general argument for bringing metal into the mold at a number of points around the circumference instead of at one side was the production of cast iron gear boxes by Canadian Westinghouse Co., Ltd., Hamilton, submitted by John Reid. In the old method of casting two boxes were cast at one time and each was fed from five openings along the inner edge of the gearbox. With this method of production, trouble was encountered along the outer edges of the gear boxes. Under the new and satisfactory method of production, these gear boxes are cast singly and are fed at six points, three on each side of the casting.

A very similar type of problem in which gating was originally from one side was the manufacture of end shields for electric motors. By a change in gating with feed at six points around the end shield, John Reid, Canadian Westinghouse Co., Ltd., eliminated the defects which had occurred with the earlier method.

Another end shield gating problem was presented by A. B. Russell and W. J. Brill, Canadian General Electric Co., Ltd. Several methods were tried to eliminate slag inclusions and burned patches at the gate. The remedy involved the removal of the ordinary gate and the fastening of a skim bar across the plate half way between the two patterns. A piece of 1/8" brass was cut to fit inside the rim of the pattern. This was fastened to the drag side of the plate, thus allowing the metal to flow gently up over the bell. The skim bar trapped most of the slag, eliminating the trouble.

Fifth New England Foundry Conference

FOLLOWING up the announcement of the New England Foundrymen's Association regional conference to be held Friday and Saturday, March 28 and 29, at Cambridge, Mass., as reported in the February *American Foundryman*, a complete schedule of the sessions for this meeting is now available. It is planned to have the registration of those attending in the main lobby of the Massachusetts Institute of Technology at Cambridge, as the Institute is cooperating with the New England Foundrymen's Association in sponsoring this, the fifth regional conference. The various sessions and events will be as listed below:

Friday, March 28

10:15 A. M.—Open Meeting
Chairman: Walter M. Saunders, Jr., Met., Providence, R. I.
Address of Welcome—By representative of the Massachusetts Institute of Technology.

*10:30 A. M.—Luman S. Brown Session**
Chairman: W. W. Rose, Executive Vice Pres., Gray Iron Founders Society, Cleveland, O.
Job Evaluation, by A. L. Kress, National Metal Trades Assn., Chicago, Ill.

12:30 P. M.—Luncheon—North Hall —Walker Memorial

2:00 P. M.—Technical Session
Chairman: Dr. R. S. Williams, Head, Dept. of Met., Massachusetts Institute of Technology.
Aluminum Alloys and Their Casting Characteristics, by P. M. Budge, Chief Met., Aluminum Co. of America, Fairfield, Conn.

3:30 P. M.—Technical Session
Chairman: R. F. Harrington, Fdry. Supt., Hunt-Spiller Mfg. Co., Boston.
Symposium on Casting Design, by Charles Burkhart, Fdry. Supt., Framingham Foundries, Framingham, Mass., Charles A. McCarthy, Prod. Supt., Watertown Arsenal, Watertown, Mass., and F. H. Van Nest, Des. Engr., General Electric Co., Lynn, Mass.

6:00 P. M. — Conference Dinner — North Hall—Walker Memorial
Presiding: A. S. Wright, Hunt-Spiller Mfg. Co., Boston.

Saturday, March 29

10:00 A. M.—Technical Session
Chairman: D. F. Sawtelle, Met., Malleable Iron Fittings Co., Branford, Conn.
Surface Finish of Castings, by W. G. Reichert, American Brake Shoe & Foundry Co., Mahwah, N. J.

12:10 P. M.—Luncheon—North Hall —Walker Memorial
Coffee Talk.

2:00 P. M.—Technical Session
Chairman: T. Joseph Judge, Fdry. Supt., Jenkins Bros., Bridgeport, Conn.
Bronze and Nickel Alloy Castings, by E. F. Stone, Fdry. Supt., Manning, Maxwell & Moore, Inc., Bridgeport, Conn.

3:30 P. M.—Technical Session
Chairman: Raymond Meader, Fdry. Supt., Whitin Machine Works, Whitinsville, Mass.
Rigging for Production, by J. C. Alberts, Prod. Mgr., Plainville Casting Co., Plainville, Conn.

*In memory of Luman S. Brown, for many years president of the Springfield Facing Co., this session is dedicated.

Simpson and Bornstein at Southern California Meeting

By W. F. Haggman*, Huntington Park, Calif.

H. S. SIMPSON, president, National Engineering Co., and vice president, A.F.A., addressed more than 135 foundrymen at the January 27 meeting of the Southern California chapter in the Elks Club, Los Angeles, Calif. Mr. Simpson spoke on the subject of "Merchandising of Cast Metal Products." After his presentation he led a general discussion on which he brought out many interesting points concerning casting sales and manufacture.

H. Bornstein, Deere & Co., Moline, Ill., and a past president and director of A.F.A., was introduced to the members and announced that the chapter had been honored by the nomination of Jack Coffman, Los Angeles Steel Casting Co., to the national Board of Directors. Mr. Bornstein served as chairman of the A.F.A. Nominating Committee when it met in Chicago.

Two humorous talks were presented by Robert Gregg, Reliance Regulator Co., and Bert Popperwell, Reliable Iron Foundry, prior to Mr. Simpson's talk.

Mr. Gregg contended that, in connection with the price angle of castings, the thing that bothered him most was the lack of old time skilled molders in jobbing shops. He stated that in many instances castings were really made in the chipping room, and it was often necessary to bring the cleaning room foreman the pattern so that the casting could be identified.

Mr. Popperwell agreed with Mr. Gregg, on most points, but said that even good molders were no longer allowed sufficient time to turn out good work and that the old time molder made "personality" castings and could probably do so even today, but that the casting buyer was no longer interested in such castings but was mainly concerned with price.

A motion picture, "Army on Wheels," courtesy Chrysler Corp., was shown, which depicted the new U. S. Army in action.

*Foundry Specialties Co., and Secretary, Southern California chapter.

Metropolitan Chapter Continues Educational Course

THE response to the series of educational course lectures put on last fall by the Metropolitan Chapter was so good and the attendance so satisfying, numbering about 200 of the young men of the New York-New Jersey district, that the chapter has arranged a second series for March and April, having been shown that these youngsters do wish to learn more of the technical developments of their industry.

Dr. N. E. Woldman, metallurgist, Eclipse Aviation Div., Bendix Aviation Corp., and a director of the chapter, will again be head of the educational course committee of the chapter. Four lectures will be given, these being held in the auditorium of the Essex County Vocational School, Newark.

The schedule for the second series is as follows:

(1) Wednesday, March 12.
Speaker: Sam Tour, Lucius Pitkin, Inc.
Subject: "Copper Alloy Castings."

(2) Wednesday, March 19.
Speaker: Dr. N. E. Woldman, Eclipse Aviation Div.
Subject: "Light Alloy Castings."

(3) Wednesday, March 26.
Speaker: F. G. Sefing, International Nickel Co.
Subject: Ferrous Alloy Castings."

(4) Wednesday, April 2.
Speaker: R. J. Allen, Worthington Pump & Machinery Co.
Subject: "Castings vs. Forgings vs. Built-Up Sections."

Southern California chapter turnout to welcome both Vice President Simpson and Past President Bornstein on their recent Pacific coast visit.

The first three speakers will deal with the various alloy combinations as cast products, their chemical and physical properties and defects, and probable causes and remedies. Door prizes for attendance are being offered. These prizes will be subscriptions to *The Foundry*, made available through the courtesy of F. G. Steinebach, editor, and books of the A.F.A. devoted to foundry work, donated by the A.F.A. headquarters.

St. Louis Holds Equipment Night

By J. W. Kelin*, St. Louis, Mo.

THE St. Louis District Chapter thoroughly enjoyed holding its first "Equipment" meeting on February 13 at the DeSoto Hotel. With 125 present for the dinner and with 50 others coming later, the chapter had its largest meeting attendance.

Chairman W. Carter Bliss, Scullin Steel Co., announced that the occasion was also the 50th birthday of Emil Goerger, first secretary of the chapter, and that past chairman Lee Everett, Key Co., was soon leaving St. Louis for a position at Kaukauna, Wis. Several new members were welcomed.

Following the dinner the five speakers on the program were the following, who described their products and emphasized the new developments in them:

E. R. Huckman, Branch Mgr., Foxboro Co., St. Louis.
Subject: "Air Measurement and Control as Applied to Gray Iron Foundries and Steel Mills."

A. W. Gregg, Fdry. Engr., Whiting Corp., Harvey, Ill.
Subject: "Mechanical Charging for Cupolas."

C. A. Snyder, American Foundry Equipment Co., Mishawaka, Ind.
Subject: "Wet Dust Collector in the Foundry Industry."

L. B. Knight, Jr., National Engineering Corp., Chicago.
Subject: "Simpson Mixers."

A. E. Hilliard, M. A. Bell Co., St. Louis.
Subject: "Safety Equipment."

Each speaker was limited to a 15 minute presentation, the chairman being assisted in this control by the ringing of a bell and applause of the audience, all of which made for fun while much interesting information was gathered from the talks.

*Federated Metals Div., A. S. & R. Co., and Secretary-Treasurer, St. Louis District Chapter.

Cincinnati Christmas Party

By Henry M. Wood*, Cincinnati, O.

THE second annual Christmas party and dinner dance of the Cincinnati district chapter was held on Saturday, December 28, 1940, at the Kenwood Country Club in Cincinnati. Over three hundred and fifty members and their guests attended, and everyone thoroughly enjoyed themselves to the utmost.

The dinner was followed by a very interesting and somewhat hilarious floor show. Our Santa Claus was portrayed by George Seyler, general manager, The Lunkenheimer Company, who just three days after Christmas, all in, down and out after his hectic pre-Christmas tasks, needed the attention administered to him by his "nurse."

A sincere vote of thanks is certainly due our co-chairmen who were solely responsible for the success of this party, Billy Gilbert, president, The Buckeye Foundry Company, and Larry Gosiger, district manager, The S. Obermayer Company.

*W. W. Sly Mfg. Co., and Secretary, Cincinnati district chapter.

Malcolm Bests Weather at Western New York

By Eliot Armstrong*, Buffalo, N. Y.

VINCENT T. MALCOLM, director of research, Chapman Valve Mfg. Co., bested "Old Man Winter" when a splendid turnout was given him by chapter members even though driving and weather conditions were atrocious. It was a distinct tribute as many drove or traveled 30 to 150 miles to hear the guest speaker.

Mr. Malcolm's talk on "Steel Castings" was really expanded to cover gray iron and non-ferrous. He pointed the way to better castings, lower loss ratios and final profit to those in a position to avail themselves of the tremendous knowledge of research engineers and services rendered so freely, without a selfish thought, through participation in A.F.A. and its activities.

The feature of the evening was preceded by the presentation of the new American League Baseball film, showing the stars in all branches of the pastime in action. The prominence given to Bob Feller perhaps showed in a measure why he is paid $30,000 a year for a little pitching, while we fellows in the foundry industry are only guaranteed 30 cents an hour for hitting the ball.

*Inter Allied Foundries of New York State, and Secretary, Western New York chapter.

The Cincinnati district chapter held their second annual Christmas party December 28 at the Kenwood Country Club. These pictures show how the crowd enjoyed the party. The Santa Claus picture (bottom, second from left) illustrates how "Old Nick" felt and looked after his strenuous house to house tour Christmas eve.

Central Indiana Discusses Refractories

By R. A. Thompson*, Indianapolis, Ind.

THE February 3 meeting of the Central Indiana Chapter was noteworthy for at this meeting we acquired 7 new members which helps us and the Association in the membership drive.

The attendance was good, with 55 out for the dinner, and 75 at the meeting later. Chapter chairman Dick Wagner presided and introduced the technical speaker, Julius A. Kayser, chief refractories engineer, Laclede-Christy Clay Products Co., St. Louis. Mr. Kayser gave a thoroughly interesting review of the applications and problems of refractories in the foundry. This talk was followed by a lively question and answer session.

*Electric Steel Castings Co., and Secretary, Central Indiana chapter.

J. H. Lansing, Malleable Founders' Society, speaker at Wisconsin chapter meeting in January. *(Photo, Courtesy John Bing, A. P. Green Firebrick Co.)*

Lee Flees Amid Ohs and Gees

THE tunes "For He's a Jolly Good Fellow" and "Auld Lang Syne" (permitted by ASCAP, of course) are probably still ringing in the ears of one of the St. Louis Chapter's staunchest supporters—Lee Everett.

Lee is leaving his present employer, Key Co., February 15, to take over as superintendent, Kaukauna Machinery Corp., Kaukauna, Wis. Consequently 30 well-wishers, including St. Louis Chapter officers such as Carter Bliss, chapter chairman; Louis Desparois, vice chairman, and Jack Kelin, secretary-treasurer, and other intimate friends, gave Lee a farewell party at the De Soto Hotel, February 5.

When Lee became a member of A.F.A. he was enrolled in the St. Louis Chapter and he developed into an active and enthusiastic chapter worker. He participated in numerous functions, served on various committees and his friendliness helped to establish good fellowship. His chapter activity was climaxed when he was elected as chapter chairman for 1939-40. So that the everlasting acquaintances with such men as Jack, Bill, Louie and others, would not be forgotten these men gathered to pay homage to Lee.

Lee Everett, "stogie" and all.

As a small memento of their friendship and esteem, those present gave Lee a very attractive and worthwhile slide rule.

(Photos, courtesy R. J. Jacoby, Key Co.)

Lee seated at the table among his friends. At his table (left to right) are: Louis Desparois, W. Carter Bliss, Lee, Jack Kelin and J. H. Williamson.

New Castings Uses Discussed at Wisconsin

By H. C. Waldron*, Milwaukee, Wis.

JAMES H. LANSING, foundry engineer, Malleable Founders' Society, Cleveland, Ohio, was the guest speaker at the January 17 meeting of the Wisconsin chapter held in the Schroeder Hotel, Milwaukee, with Chapter President B. D. Claffey, General Malleable Corp., Waukesha, presiding.

Following the dinner, a film obtained through the courtesy of the Allegany-Ludlum Steel Co., entitled "Stainless Steel," was shown. The film was in color and sound and proved to be very interesting and instructive. Following the film, Mr. Lansing spoke to the chapter on "New Uses for Castings." He illustrated his talk with slides which showed certain parts which previously had been fabricated by other processes and which now, through redesign, were being produced as castings. Replacement of several forgings by castings was illustrated and it was shown how slight changes in design had made malleable iron castings a replacement material at a much reduced cost. Other types of conversion to malleable castings included parts which formerly were welded or riveted. The speaker explained that, in many of these cases, the additional corrosion resistance imparted by castings was a definite advantage over the welded or fabricated part.

*Nordberg Mfg. Co., and Secretary, Wisconsin chapter.

Northern Illinois - Southern Wisconsin Talks Apprenticeship

By J. R. Cochrane*, Rockford, Ill.

BEFORE a large group of Northern Illinois-Southern Wisconsin foundrymen, A. L. Armantrout, superintendent of industrial relations, Carnegie-Illinois Steel Corp., gave a well prepared discussion of the necessity for apprentice training.

*Foundry Div., Sundstrand Machine Tool Co., and Technical Secretary, Northern Illinois-Southern Wisconsin chapter.

Chapter chairman P. A. Paulson, Gunite Foundries Corp., Rockford, Ill., had charge of the meeting.

Mr. Armantrout presented a brief history of apprenticeship and told of numerous changes in the apprentice system of the past few years, and the various points to consider in inaugurating an apprentice course in the shop. He also prepared an outline of the training system used for foundry apprentices at the South Works, Carnegie-Illinois Steel Corp.

Membership Contest

(Continued from page 15)

Southern California Chapters are keeping the present leaders humping. The Detroit Chapter moved up from eleventh place to eighth. St. Louis District Chapter moved from twelfth to ninth place and Quad City has moved up consistently from seventeenth to thirteenth place.

All of the Chapters have entered into the spirit of this drive and are giving splendid cooperation. With five months to go, it is still anyone's race.

March Chapter Meeting Schedule

March 3

Central Indiana
Washington Hotel, Indianapolis
A. H. DIERKER, Ohio State University
"The Cupola as a Foundry Tool"
W. B. GEORGE, R. Lavin & Sons
"Gates and Risers for Non-Ferrous Castings"

✦

Western Michigan
Hotel Occidental, Muskegon
Chapter Organization Meeting
A. W. GREGG, Whiting Corp.
"Practical Cupola Operation"

✦ ✦

March 4

Michiana
Hotel LaSalle, South Bend, Ind.
A. H. DIERKER, Ohio State University
"Slags and Refractories as Metallurgical Tools"

✦ ✦

March 5

Metropolitan
Essex House, Newark, N. J.
H. S. WASHBURN, Plainville Casting Co.
"Production of Modern Castings"

✦ ✦

March 7

Western New York
Hotel Touraine, Buffalo, N. Y.
H. S. SIMPSON, Vice President of A.F.A.
"The Marketing of Cast Metal Products"

✦ ✦

March 10

Chicago
Chicago Towers Club
W. R. JENNINGS, Deere & Co., Moline, Ill.
"Rigging and Molding Equipment"

✦ ✦

March 11

Cincinnati District
Plant Inspection—American Rolling Mill Co., Hamilton, O.
Dinner—6:30 p. m., Shuller's Restaurant, Cincinnati

✦

Northern Illinois-Southern Wisconsin
Hotel Faust, Rockford
F. G. SEFING, International Nickel Co.
"The Influence of the Condition of the Molten Metal on the Soundness and Properties of Castings"

✦ ✦

March 12

New England Foundrymen's Association
Engineers Club, Boston
W. B. GEORGE, R. Lavin & Sons, Chicago
"Gating and Risering Non-Ferrous Castings"

✦ ✦

March 13

Northeastern Ohio
Cleveland Club, Cleveland

✦

St. Louis District
Hotel DeSoto, St. Louis
F. L. WEAVER, Great Lakes Foundry Sand Co.
"Core Room Practice"

✦ ✦

March 14

Central New York
Willard Straight Hall, Cornell University, Ithaca
C. O. BURGESS, Union Carbide & Carbon Co.
"The Effect of Alloys on Cast Iron"
W. B. GEORGE, R. Lavin & Sons
"Melting Practice in a Brass Foundry"

✦

Northern California
Alexander Hamilton Hotel, San Francisco
Coffee Talk: ANTON SLUIS
"Holland Before, During and After the Invasion"
C. D'AMICO, Standard Oil Co.

✦

Philadelphia
Engineers Club
V. A. CROSBY, Climax Molybdenum Co., Detroit
"Molybdenum in Iron"
E. R. Young, Climax Molybdenum Co., Chicago
"Molybdenum in Steel"

✦ ✦

March 17

Pittsburgh Foundrymen's Association
Fort Pitt Hotel, Pittsburgh
E. E. WOODLIFF, H. W. Dietert Co.

✦

Quad City
Blackhawk Hotel, Davenport
E. K. SMITH, Electro Metallurgical Co., Detroit
"Alloy Additions to Cast Iron"

✦ ✦

March 20

Detroit
Detroit Leland Hotel
E. C. ZIRZOW, National Mall. & Steel Castings Co.
"Practical Coremaking"

March 21

Birmingham District
Tutwiler Hotel, Birmingham
R. G. MCELWEE, Vanadium Corp. of America
"Alloying and Processing of Iron"

✦

Wisconsin
Hotel Schroeder, Milwaukee
SECTIONAL MEETINGS
Gray Iron:
Chairman, H. LADWIG, Allis-Chalmers Mfg. Co.
Speaker, T. SWANSON, Allis-Chalmers Mfg. Co.
Subject, *"Machine Design as it Affects Castings"*
Malleable:
Chairman, D. I. DOBSON, General Malleable Co.
Speaker, A. C. ERLANDSON, General Malleable Co.
Subject, *"Sand Control"*
Non-Ferrous:
Chairman, ROY JACOBS, Standard Brass Co.
Speaker, H. L. SMITH, Federated Metals Metals Div., A. S. & R. Co.
Subject, *"Bronzes and Their Alloys"*
Steel:
Chairman, D. C. ZUEGE, Sivyer Steel Casting Co.
Speaker, J. EWENS, Milwaukee Steel Foundry Co.
Subject, *"Controlling Production"*

✦ ✦

March 27

Southern California
Hotel Hayward, Los Angeles
A. W. GREGG, Whiting Corp.
"Cupola Operation"

✦ ✦

March 28

Ontario
Rock Garden Lodge, Hamilton
M. L. MCGUIRE, Geo. F. Pettinos, Inc.
"Sand in the Foundry and Foundry Problems"

✦

Chesapeake
Lord Baltimore Hotel, Baltimore

Regional Meeting

March 28 and 29

New England Foundrymen's Association
Fifth New England Foundry Conference
Massachusetts Institute of Technology, Cambridge, Mass.

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Price—$1.25 per copy

Publication No. 21

Latest Safety Code—Just Off the Press

Code of Recommended Good Safety Practices for the Protection of Workers in Foundries.

This code of Recommended Good Safety Practices for the Protection of Workers in Foundries has been developed to cover the necessary engineering and good housekeeping requirements, as well as specifications for personal protection, wherever such operation may be carried on in the gray iron, malleable, steel and nonferrous branches of the foundry industry. This code also covers prime movers, the pattern, machine and maintenance departments, which are considered as part of the foundry in their operation. This is the fifth in the series of Recommended Good Safety Practice codes developed by the A.F.A. Industrial Hygiene Codes Committee and approved by the Board of Directors as Recommended Practices for the Foundry Industry.

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